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From inflation to exchange rate targeting: Estimating the stabilization effects for a small open economy

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A B S T R A C T

This paper attempts to estimate possible losses in macroeconomic stabilization due to a move from inflation to exchange rate targeting on the example of the Czech Republic. The authors use an estimated New Keynesian policy model, typical inflation and exchange rate targeting rules, and representative central bank loss functions to carry out these estimations. The authors find that for the Czech Republic, moving from the historically applied inflation targeting to optimized exchange rate targeting should not involve any significant losses in macroeconomic stabilization. However, the Czech National Bank could improve its stabilization outcomes while remaining an inflation targeter. This requires the Czech National Bank to respond more strongly to increasing expected future inflation and to be less concerned about an opening output gap when adjusting its policy rate. Moving then from such optimized inflation targeting to optimized exchange rate targeting can result in significant losses in economic stabilization in the magnitude of 0.4–2% points of GDP growth.

1. Introduction

Many small open economies around the world, including the Czech Republic, followed the positive experience of New Zealand with macroeconomic stabilization and currently apply inflation targeting as their monetary policy regime. The on-going trade and monetary integration within Europe constitutes an example for possible future economic integration in other world's regions. By joining the European Union (EU), the European countries commit to further monetary integration and eventual adoption of the euro sometime in the future. Those European countries that will be applying

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inflation targeting before taking the steps towards euro adoption will have to switch from inflation to exchange rate targeting at some point. This can occur with the entry into the ERMII or later within the ERMII. In general, moving from inflation to exchange rate targeting decreases the autonomy of domestic monetary policy for a given country. This could exacerbate the country's macroeconomic stability and have negative implications for the country's financial stability and economic growth. However, the extent of the exacerbation is an empirical matter specific to each country and could, in some cases, prove to be negligible.[1]

This paper outlines a possible methodology for estimating the effects of moving from inflation to exchange rate targeting on macroeconomic stabilization using the example of the Czech Republic. This paper thus remains silent about the implication of possible euro adoption by the Czech Republic in the future and focuses on analyzing macroeconomic stabilization outcomes under inflation targeting and exchange rate targeting for the Czech Republic. The applied methodology involves an estimated New Keynesian policy model for the Czech Republic using quarterly data from 1995 to 2007, typical specifications of inflation targeting and exchange rate targeting rules, and a representative loss function for the central bank. The estimated open-economy model for the Czech Republic has a domestic and an exogenous foreign block describing the macroeconomic dynamics in the euro area. The properties of the model are studied through the impulse response analysis. The accompanying variance decomposition reveals that despite the exchange rate shock having the largest estimated size its impact on the Czech output gap and inflation is smaller than the impact of any of the domestic shocks. The latter appear to be almost equally important with the domestic supply shock slightly dominating. The importance of external developments for the Czech economy is illustrated by the effects of a foreign demand shock, which appears to be the most influential force behind variations in Czech inflation. Treating the estimated model as a set of constraints, we optimize, in turn, the inflation targeting and exchange rate targeting rule, using a representative central bank loss function. This analysis implies that, for the Czech Republic, moving from the current inflation targeting rule to an optimized exchange rate targeting rule would not induce any significant losses in macroeconomic stabilization. However, the Czech National Bank can further improve its macroeconomic stabilization efforts, as also argued by Smidkova (2008), by increasing its response to expected future inflation and decreasing its response to the current output gap, while adhering to current interest rate smoothing. Moving from such optimized inflation targeting to optimized exchange rate targeting would involve losses in macroeconomic stabilization approximately in the range of 0.4–2% points of GDP growth.

The literature has been dealing extensively with the appropriate choice between exchange rate and inflation targeting regimes for a given country, see, e.g., Svensson (1997) for an early discussion on Norway. We, on the other hand, do not question or investigate the initial choice of inflation targeting but take it as given, and look into the prospects of a possible switch to exchange rate targeting. This is similar to Karam et al. (2008), who investigate the cost and benefits of adopting the euro using a calibrated medium-size DSGE[2] model focusing on Central and Eastern Europe. They find that although the monetary union has the benefit of eliminating nominal exchange rate shocks, the loss of the buffering role of the nominal exchange rate leads to greater volatility in domestic output and inflation. However, they point out that the costs are likely to decline over time due to accelerated convergence as a result of the monetary union membership. The convergence process and challenges for monetary policy concerning the Czech Republic have recently been analyzed by Allard and Munoz (2008) and Brůha et al. (2007) using calibrated DSGE models. Also, Beneš et al. (2005) look into the desired properties of a forecasting DSGE model, effectively describing the convergence process in the Czech Republic. Our paper's focus is therefore different as we take the move to exchange rate targeting as the benchmark change for the currently applied inflation targeting regime of monetary policy as opposed to the rather irreversible adoption of the euro. Our approach thus differs from that of Karam et al.

[1] The twelve countries of the European Union that do not use the euro are: Denmark, Sweden, the United Kingdom, Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania and Slovakia. Before a state can join the Eurozone, it must spend two years in the European Exchange Rate Mechanism (ERM II). As of 1 January 2008, five National Central Banks participate in the mechanism. The ERM II members include Denmark (as of 1999), Estonia and Lithuania (as of 2004), and Latvia and Slovakia (as of 2005). Most recent Eurozone members include Slovenia (as of 2007), and Cyprus and Malta (as of 2008). The next enlargement will be to Slovakia in 2009.

[2] Dynamic Stochastic General Equilibrium.